is necessary. The existence of protections such as these in the ballast system can potentially save the lamp and ballast, as well as peripheral equipment.

On the other hand, some apparently fault or panic conditions are merely noise, and are so transient so as to present no reason to modify the AC waveform sent to, or the power it delivers to, the lamp. That is, there is no enduring organic problem with either the circuit, or the lamp load driven by the circuit, or any associated components or elements, to mandate changing the driving signals of the lamp, and thus visibly diminishing the performance of the lamp.

There are a variety of methods to sense a fault condition. Sometimes, electronic ballast overload protection is effected using analog comparators, where an overload protection circuit comprising analog comparators is hardwired to the lamp, and designed to continually sense the lamp voltage and the lamp current. If the value of the voltage or current is larger than a reference value built into the comparator, the comparator will output a signal to shut down the switching pulse generated by the ballast and the lamp will not be driven. Many ballasts are microprocessor based. These microprocessor-based ballasts may also use analog comparators to detect the lamp voltage or the lamp current and shut down the switching signal when there is an overage. Alternatively, the output of the analog comparator can be sent to the central processing unit (CPU) of the microprocessor driving the lamp with a pulse width modulated (PWM) signal. The comparator output will activate a software program that will change the PWM module's settings to either shut down the switching pulse, change the frequency , or reduce the pulse switch so as to insure the power delivered to the lamp will be low enough to resolve the fault condition.

A recent proposal, disclosed in U.S. Patent No. 5,696,431, commonly assigned with the instant application, which is incorporated herein by reference. This patent discloses, upon sensing of an overload condition, immediately increasing the switching frequency to its maximum setting (and thus the switching period to its minimum) for the duration of the fault condition.